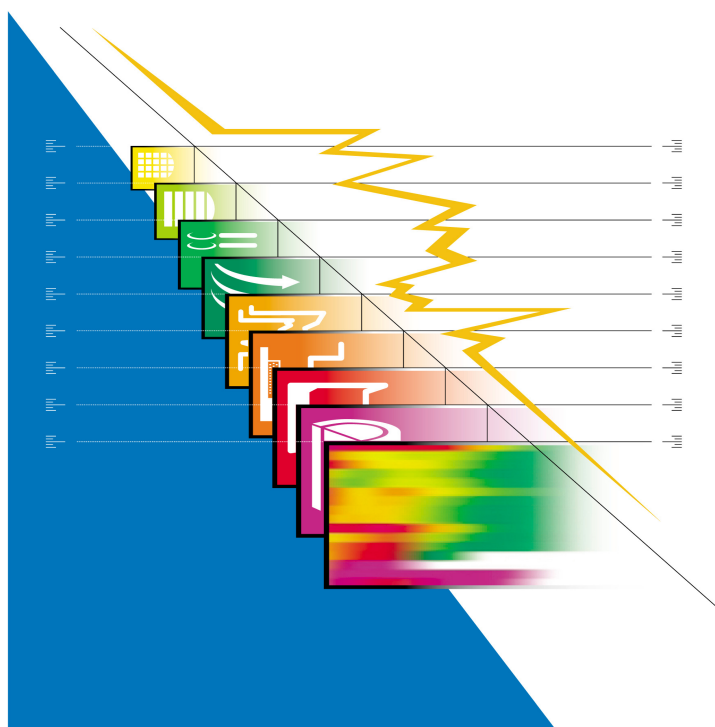


Newfield Exploration

Well: [Peacemaker 1-5H](#)

Location: [Glacier County, Montana](#)

Filtrate Invasion Analysis Report



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1.0 Purpose

To determine the amount of mud filtrate invasion in core samples from the well:
Peacemaker 1-5H

2.0 Method

- 2.1 The water based mud was traced prior to initiating coring activities.
- 2.2 Mud samples were collected during coring operations and time correlated to depth.
- 2.3 These samples were measured to establish tracer concentration in the mud filtrate at each sample depth.
- 2.4 The tracer concentration is then measured in the water from the core sample that was extracted using the dean-stark process.
- 2.5 A comparison of the tracer concentration in the extracted water to the tracer concentration in the mud filtrate provides a measure of the filtrate contamination.

$$\text{Filtrate Invasion \%} = \frac{{}^3\text{H}_2\text{O concentration in extracted water}}{{}^3\text{H}_2\text{O concentration in mud filtrate}}$$

3.0 Results

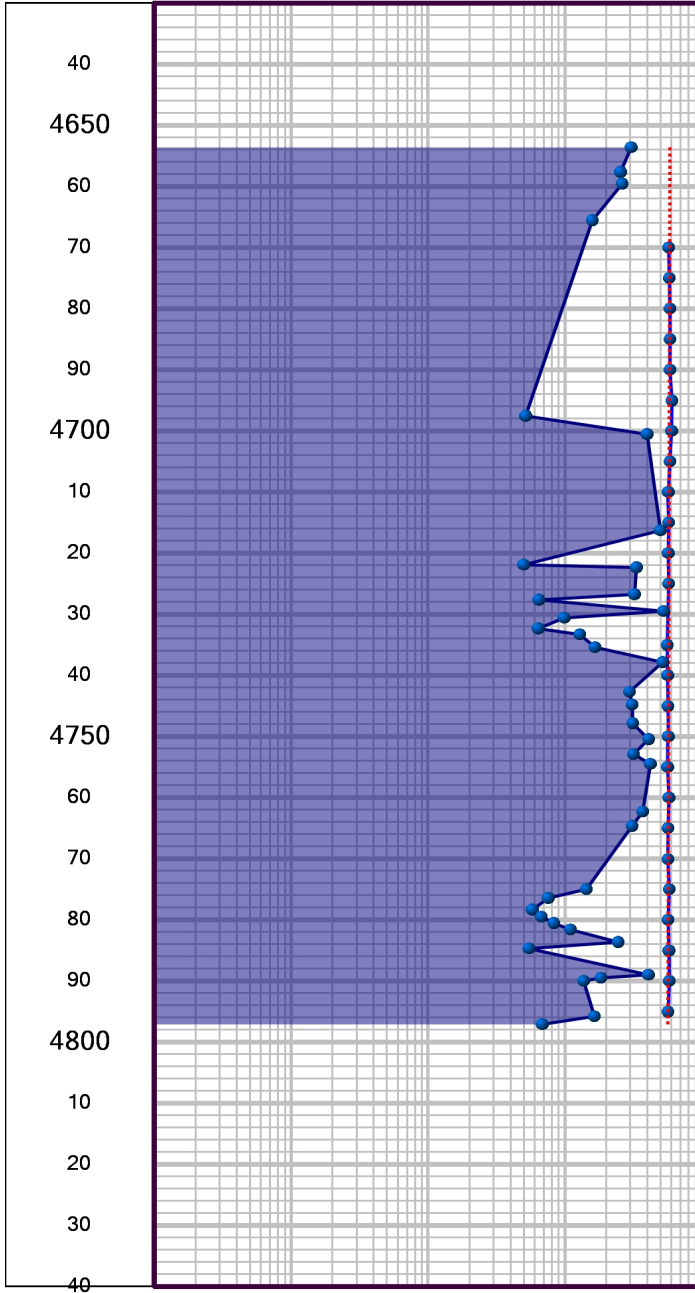
A subset of forty-five (45) mud samples were analyzed from all of the samples collected during the coring operations.

Seventy-four (74) core plugs were taken from the whole core and processed with the dean-stark method. The extracted water was then analyzed for tracer concentration.

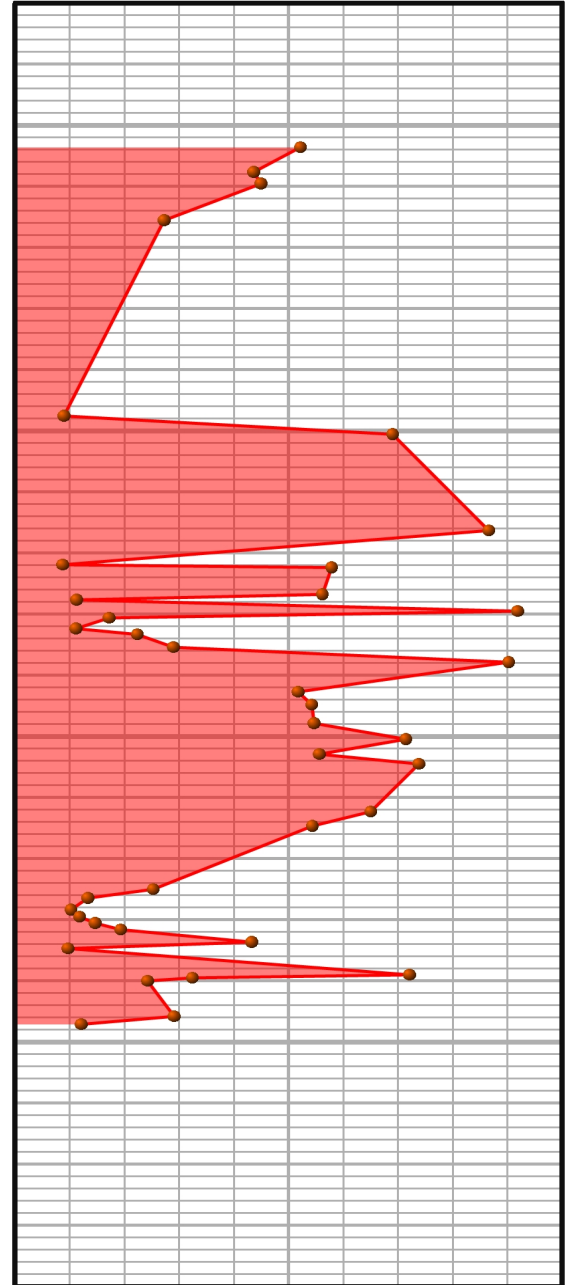
The log(s) and table(s) below show the calculated invasion percentage in each core sample.

***Note: Final invasion percentages were not quantifiable when the volume of extracted dean-stark water from a plug was below 0.1 milliliters. This resulted in twenty-seven (27) of the total seventy-four (74) dean-stark samples not being included in this report.**

Baseline Mud Sample Concentration		
0.1	[pCi/mL]	1000
Trend Line		
0.1	[pCi/mL]	1000
Concentration in Dean-Stark Water		
0.1	[pCi/mL]	1000



Percent Filtrate Invasion		
0	[%]	100



Baseline Mud Sample Concentration		
0.1	[pCi/mL]	1000
Trend Line		
0.1	[pCi/mL]	1000
Concentration in Dean-Stark Water		
0.1	[pCi/mL]	1000

